VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
SOUTH CENTRAL REGIONAL OFFICE

FACT SHEET
FOR PROPOSED PERMITTING ACTION
UNDER 9 VAC 5 Chapter 80 Article 1 (TITLE V-CLEAN AIR ACT)

APPLICANT:

VA-30397 AIRS ID 51-680-0095
Griffin Pipe Products Co., Inc.
P.O. Box 740
Lynchburg, VA 24505

FACILITY LOCATION:

10 Adams Street, Lynchburg
UTM Coordinates are ZONE: 17 EASTING: 664.5 km NORTHING: 4143.0 km

FACILITY DESCRIPTION:

Griffin Pipe Products Co., Inc. is a manufacturer of ductile iron pipe covered by Standard Industrial Classification (SIC) Code 3321 [North American Industry Classification System (NAICS) Code 331511]. Operations at the facility can be conducted twenty-four (24) hours per day, seven (7) days per week, fifty-two (52) weeks per year. The facility manufactures ductile iron pipe by melting scrap iron in a cupola using coke as fuel and treats the molten iron with additives to make ductile iron. The molten iron is poured into water cooled centrifugal casting machines to make pipe that is used in water supply systems. After casting the pipe is processed in an annealing oven. The pipe is then finished by grinding and cutting where necessary to meet specification, lined with a thin layer of cement, and painted. The facility has the capability to produce 50 tons of molten iron per hour.

Compliance History

Consent orders were signed 9/18/96 and 4/10/98. The 9/18/96 Consent Order was because of excessive opacity from the foundry area and melting department. As part of a Supplemental Environmental Project (SEP) particulate emissions from the foundry area were rerouted to a new fabric filter, which replaced old less efficient fabric filter equipment. In addition the desulfurization process and the magnesium plunging process in the melting department were connected to a fabric filter. The 4/10/98 Consent Order was issued because of the installation by the source of a asphaltic coating dip tank without first receiving a permit. A permit was issued for the dip tank and as a SEP additional particulate emissions from the foundry area were connected to a baghouse. In 2000 the foundry area of the facility was shut down and equipment was removed. Inspection reports other than these two incidence have shown the source to be in compliance.

EMISSIONS SUMMARY:

PLANTWIDE EMISSIONS SUMMARY [tons per year]	
CRITERIA POLLUTANTS	1999 ESTIMATED EMISSIONS
Particulate Matter (PM_{10})	131.7
Nitrogen Oxides (NO_x)	39.0
Sulfur Dioxide (SO_2)	80.1
Carbon Monoxide (CO)	647.8
Volatile Organic Compounds (VOC)	434.2
HAZARDOUS AIR POLLUTANTS	
Xylene	>10
Combined	>25

TITLE V PROGRAM APPLICABILITY BASIS:

This facility has the potential to emit greater than 100 tons per year of CO, VOCs, and SO_2, also greater than 10 tons per year of an individual HAP. Due to this facility's potential to emit, Griffin Pipe Products Co., Inc. is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 9 VAC 5 Chapter 80 Article 1.

Applicable Requirements

Melting Department

Cupola (S2)

The cupola was installed prior to 1972 and is therefore considered as existing equipment. It has a rated process capacity of 50 tons per hour (tons/hr) of molten iron, with a heating capacity of 143 million Btu per hour (MMBtu/hr), using the combustion of coke to provide the heat needed to melt the scrap iron. Because of its installation date it is subject to the regulations in 9 VAC 5 Chapter 40. The cupola by definition is considered to be a combustion unit, which means it must meet the emission standards under 9 VAC 5 Chapter 40 Article 4. There is no regulatory standard for carbon monoxide emissions, however these emissions are controlled by an afterburner.

Emission Limit With a process capacity of 50 tons/hr the particulate emissions standard is 42.0 pounds per hour (lbs/hr) under 9 VAC 5-40-2410. A fabric filter is used to control particulate emissions. Control efficiency is conservatively estimated to be 99%. During normal operations capture efficiency of particulate emissions is estimated to be 98%. Using the 99% control efficiency and a conservative 96% capture efficiency the emission factor before controls would have to be 16.95 pounds per ton (lbs/ton) of metal produced in order to exceed the emission standard. AP-42 has a cupola uncontrolled factor of 13.8 lbs/ton of metal produced. Therefore, it is felt that the margin of compliance is sufficient to assure compliance with the emission standard.

The emission standard for sulfur dioxide for a combustion installation is 2.64 pounds per

million Btu (lbs/MMBtu) under 9 VAC 5-40-280. If all of the sulfur in the coke were converted to sulfur dioxide the coke would have to contain 1.64% sulfur to exceed the emission standard. Metallurgical coke used by the source contains approximately 0.6% sulfur; also some of the sulfur is retained in the molten iron (AP-42 Section 12.10 assumes that 30% of the sulfur is converted to Sulfur Dioxide). The source will maintain records of the sulfur content of the coke used in the cupola. Therefore the margin of compliance is sufficient to assure compliance with the emission standard.

Opacity Visible emissions are governed by the standard in 9 VAC 5-40-320, which references 9 VAC 5-40-80, 20% except for one six-minute period in any one hour of not more than 60%. A maintenance program for the process and air pollution control equipment is required by the permit to minimize excess emissions. Records must be maintained of scheduled and non-scheduled maintenance and operator training. The source is required to make weekly observations for the presence of visible emissions from the cupola stack and fabric filter exhausts. If visible emissions are present the source must conduct a 6-minute visible emissions evaluation (VEE) to demonstrate compliance. If any of the observations exceed the standard then the VEE shall be conducted for 60 minutes. Corrective actions shall be taken when necessary to assure compliance with the standard. An observation log will be maintained by the source of observations, VEEs, and corrective actions taken.

Desulfurization (S3) and Magnesium Plunging (S5)

The desulfurization process was installed prior to 1972. It has a rated process capacity of 50 tons/hr, using the addition of materials to a ladle of molten iron to remove excess sulfur in the form of slag. Because of its installation date it is subject to the regulations in 9 VAC 5 Chapter 40. This process unit must meet the emission standards under 9 VAC 5 Chapter 40 Article 4.

The magnesium plunging process was installed prior to 1972. It has a rated process capacity of 50 tons/hour, using the addition of magnesium to a ladle of approximately 10,000 pounds of molten iron to produce ductile iron. Because of its installation date it is subject to the regulations in 9 VAC 5 Chapter 40. This process unit must meet the emission standards under 9 VAC 5 Chapter 40 Article 4.

A Consent Order between the source and the DEQ dated September 12, 1996 required the installation of a fabric filter to control emissions for the desulfurization process and magnesium plunging process. A single fabric filter controls both of these processes.

Emission Limit With a desulfurization process capacity of 50 tons/hr the particulate emissions standard is 44.6 lbs/hr under 9 VAC 5-40-260. A hood over the desulfurization ladle captures 85% of the particulate emissions. A fabric filter is used to control particulate emissions captured by the hood. Control efficiency is conservatively estimated to be 99.9%. Using the 99.9% control efficiency and a conservative 75% capture efficiency, in order to exceed the emission standard the emission factor before controls would have to be 3.6 lbs/ton of metal produced. AP-42 factors for the desulfurization process are 1.09 lbs/ton uncontrolled and 0.009 when controlled by a baghouse. The Ductile Iron Pipe Research Association (DIPRA) has published uncontrolled factors for particulates that are less than 1 pound per ton. Therefore, it is felt that the margin of compliance is sufficient to assure compliance with the emission standard.

With a magnesium plunging process capacity of 50 tons/hr the particulate emissions standard is 44.6 lbs/hr under 9 VAC 5-40-260. A hood over the magnesium plunging ladle captures 95% of the particulate emissions. A fabric filter is used to control particulate emissions captured by

the hood. Control efficiency is conservatively estimated to be 99.9%. Using the 99.9% control efficiency and a conservative 90% capture efficiency, in order to exceed the emission standard the emission factor before controls would have to be 8.8 lbs/ton of metal produced. AP-42 contains an uncontrolled factor for the magnesium plunging process of 1.8 lbs/ton. Therefore, it is felt that the margin of compliance is sufficient to assure compliance with the emission standard.

Sulfur dioxide emissions from both the desulfurization process and the magnesium plunging process are governed by 9 VAC 5-40-280 A which states that in stack emissions can not exceed 2000 parts per million (ppm). No information could be found on sulfur dioxide emission factors from either of these processes in either AP-42 or DIPRA literature. Section 12.5.2.3 of AP-42 discusses the removal of sulfur and states "The sulfur reacts with the reagents and is skimmed off as slag" Because the desulfurization process occurs first there is little or no sulfur remaining in the iron that could react during the magnesium plunging process. It is felt that the margin of compliance is sufficient to assure compliance with the emission standard.

Opacity Visible emissions for the desulfurization and magnesium plunging processes are governed by the standard in 9 VAC 5-40-320, which references 9 VAC 5-40-80, 20% except for one six-minute period in any one hour of not more than 60%. A maintenance program for the process and air pollution control equipment is required by the permit to minimize excess emissions. Records must be maintained of scheduled and non-scheduled maintenance and operator training. The source is required to make weekly observations for the presence of visible emissions from the fabric filter exhaust. If visible emissions are present the source must conduct a 6-minute visible emissions evaluation (VEE) to demonstrate compliance. If any of the observations exceed the standard then the VEE shall be conducted for 60 minutes. Corrective actions shall be taken when necessary to assure compliance with the standard. An observation log will be maintained by the source of observations, VEEs, and corrective actions taken.

Pipe Casting Department Requirements

Casting (S7)

The pipe casting equipment was installed prior to 1972. There are 3 centrifugal casting machines, each having a different maximum pipe size, respectively for machines one through three of 12 inches, 16 inches, and 6 inches. This gives the casting machines maximum process capacities of 25.4 tons/hour, 29.9 tons/hour, and 14.0 tons/hour respectively. The molten iron is introduced into water-cooled rotating pipe form to create the pipe. A sand form is used to create the necessary shape at the end of the pipe. Because of its installation date it is subject to the regulations in 9 VAC 5 Chapter 40. This process unit must meet the emission standards under 9 VAC 5 Chapter 40 Article 4.

Emission Limit With the process capacities stated above the particulate emissions standard for the three machines are 35.8, 40.0, and 24.0 lbs/hr respectively under 9 VAC 5-40-260. Because particulate emissions from the casting machines are minimal there are no stacks and any emissions are considered as fugitive. It is felt that the margin of compliance is sufficient to assure compliance with the emission standard.

Annealing (S10)

The annealing oven was installed prior to 1972. The maximum heating capacity of the oven is 56 million Btu per hour, with a process capacity of at least 50 tons/hour. Natural gas is used as

the primary fuel, with #2 fuel oil as a backup, to heat the pipe after it is cast. This allows the cooling of the pipe to be controlled to result in the necessary metal properties. Because of its installation date it is subject to the regulations in 9 VAC 5 Chapter 40. This process unit must meet the emission standards under 9 VAC 5 Chapter 40 Article 4.

Emission Limit With a process capacity of 50 tons/hr the particulate emissions standard is 44.6 lbs/hr under 9 VAC 5-40-260. All emissions from the oven are a result of the fuel being burned for heat. Particulate emissions when burning fuel oil, the worst case, calculate to be less than 1 lb/hour when AP-42 factors are used. Therefore, it is felt that the margin of compliance is sufficient to assure compliance with the emission standard.

The emission standard for sulfur dioxide for a combustion installation is 2.64 lbs/MMBtu under 9 VAC 5-40-280. Pipeline quality natural gas has very little sulfur. The sulfur content of #2 fuel oil is less than 0.5%. The source will maintain records of fuel oil purchases. Therefore the margin of compliance is sufficient to assure compliance with the emission standard.

Opacity Visible emissions from the annealing oven are governed by the standard in 9 VAC 5-40-320, which references 9 VAC 5-40-80, 20% except for one six-minute period in any one hour of not more than 60%. The source is required to make weekly observations for the presence of visible emissions from the exhaust stack. If visible emissions are present the source must conduct a 6-minute visible emissions evaluation (VEE) to demonstrate compliance. If any of the observations exceed the standard then the VEE shall be conducted for 60 minutes. Corrective actions shall be taken when necessary to assure compliance with the standard. An observation log will be maintained by the source of observations, VEEs, and corrective actions taken.

Shell Sand Silo (S18)

This silo, with its installed bin vent dust collector, was installed around 1981, therefore it is considered as new equipment. A permit was not issued for the silo installation. The silo has a storage capacity of 100 tons, with a loading rate of approximately 25 tons/hr. Resin coated sand is stored in the silo for use in making shell cores used in the pipe casting process. Because of its installation date the silo is subject to the regulations in 9 VAC 5 Chapter 50. This process unit must meet the standards under 9 VAC 5 Chapter 50 Article 1.

Opacity Visible emissions from the sand shell silo are governed by the standard in 9 VAC 5-50-80, 20% except for one six-minute period in any one hour of not more than 30%. The source is required to make weekly observations for the presence of visible emissions from the fabric filter exhaust. If visible emissions are present the source must conduct a 6-minute visible emissions evaluation (VEE) to demonstrate compliance. If any of the observations exceed the standard then the VEE shall be conducted for 60 minutes. Corrective actions shall be taken when necessary to assure compliance with the standard. An observation log will be maintained by the source of observations, VEEs, and corrective actions taken.

Finishing Department Requirements

Pipe Grinding (S11)

This process involves the grinding or cutting of the unfinished end of the pipe using hand operated equipment. Processing capacity is at least 50 tons/hr. Emissions from this operation are captured by a hood and controlled by a fabric filter. Because this operation was an integral part of the pipe making operations prior to 1972, this operation is subject to the regulations in 9 VAC 5 Chapter 40 and must meet the emission standards under 9 VAC 5 Chapter 40 Article 4.

Emission Limit With a process capacity of 50 tons/hr the particulate emissions standard is 44.6 lbs/hr under 9 VAC 5-40-260. A hood conservatively captures 85% of the airborne particulate emissions. A fabric filter is used to control particulate emissions captured by the hood. Using a conservative control efficiency of 99% control efficiency and 85% capture efficiency, in order to exceed the emission standard the emission factor before controls would have to be 5.6 lbs/ton of metal produced. AP-42 contains a factor of 0.3 lbs/ton for particulates released into the work environment. Therefore, it is felt that the margin of compliance is sufficient to assure compliance with the emission standard.

Opacity Visible emissions from the grinding operation are governed by the standard in 9 VAC 5-40-320, which references 9 VAC 5-40-80, 20% except for one six-minute period in any one hour of not more than 60%. The source is required to make weekly observations for the presence of visible emissions from the exhaust stack. If visible emissions are present the source must conduct a 6-minute visible emissions evaluation (VEE) to demonstrate compliance. If any of the observations exceed the standard then the VEE shall be conducted for 60 minutes. Corrective actions shall be taken when necessary to assure compliance with the standard. An observation log will be maintained by the source of observations, VEEs, and corrective actions taken.

Quick Dry Pipe Paint (S12)

Emissions from this process are fugitive VOC emissions only. A fast drying black paint is applied to an approximately 1-foot portion of the pipe using a paint pad. This is followed by a stencil of fast drying white paint to identify the batch of iron used to cast the particular pipe. This process was in operation prior to 1972 and is therefore subject to the regulations in 9 VAC 5 Chapter 40. There are no specific applicable requirements in 9 VAC 5 Chapter 40 for fugitive VOC emissions.

Cement Silo (S13) and Sand Silo (S14)

Sand and cement are stored in a single silo that is divided vertically into two compartments, one for sand and one for cement. Each compartment has a capacity to store 127 tons of material, with a loading rate of approximately 25 tons/hr per compartment. The sand and cement are used to make a concrete lining in the pipe. This silo, with a bin vent dust collector installed for each compartment, was installed before 1972. It is therefore considered as existing equipment and is subject to the regulations in 9 VAC 5 Chapter 40.

Opacity Visible emissions from the grinding operation are governed by the standard in 9 VAC 5-40-320, which references 9 VAC 5-40-80, 20% except for one six-minute period in any one hour of not more than 60%. The source is required to make weekly observations for the presence of visible emissions from the exhaust stack. If visible emissions are present the source must conduct a 6-minute visible emissions evaluation (VEE) to demonstrate compliance. If any of the observations exceed the standard then the VEE shall be conducted for 60 minutes. Corrective actions shall be taken when necessary to assure compliance with the standard. An observation log will be maintained by the source of observations, VEEs, and corrective actions taken.

Pipe Painting Machines (S16)

The source has 2 machines that are used to paint the pipe. These machines have a combined

capacity to apply 45 gallons of paint per hour. The paint used is a very high solids asphaltic base coating. Potential emissions from these machines are VOCs and particulates. Paint is applied to the pipe without using air in a very coarse spray, similar to a flow coater, which results in no overspray. For this reason there are extremely few, if any, particulate emissions. Stacks are on the paint machines are to remove the VOC emissions from the work area. These machines were installed prior to 1972 and are therefore subject to the regulations in 9 VAC 5 Chapter 40. There are no specific applicable requirements in 9 VAC 5 Chapter 40 for VOC emissions.

Opacity Visible emissions from the painting machines are governed by the standard in 9 VAC 5-40-320, which references 9 VAC 5-40-80, 20% except for one six-minute period in any one hour of not more than 60%. The source is required to make weekly observations for the presence of visible emissions from the exhaust stack. If visible emissions are present the source must conduct a 6-minute visible emissions evaluation (VEE) to demonstrate compliance. If any of the observations exceed the standard then the VEE shall be conducted for 60 minutes. Corrective actions shall be taken when necessary to assure compliance with the standard. An observation log will be maintained by the source of observations, VEEs, and corrective actions taken.

Fittings-Paint Dip Tank (S36)

A permit was issued to the source for the fittings dip tank on 3/19/98. The paint used is a very high solids asphaltic base coating. The tank is required to be covered when not in use to minimize VOC emissions. Records are required to be kept by the source of annual VOC emissions from the dip tank, calculated every month. Emissions are calculated using the VOC content of any coating added to the dip tank as well as the VOC content of any thinners added to the dip tank.

Insignificant Activities

The source has two small natural gas-fired boilers (BL1 & BL2) that are used for hot water and space heat. These boilers are each rated at less than 10 MMBtu/hr, 2.5 and 4.2 respectively. Because of size and installation date these boilers are not subject to NSPS. They are considered as insignificant activities under 9 VAC 5-80-720 C. Regulatory requirements for visible emissions under 9 VAC 5-40-80 must be met.

Located at the facility are several storage tanks. A 20,000 gallon tank used for fuel oil is not subject to NSPS because of installation date and is considered as insignificant under 9 VAC 5-80-720 B because uncontrolled emissions of VOCs are less than 5 tons per year. A 1000 gallon gasoline tank is considered as insignificant under 9 VAC 5-80-720 B because uncontrolled emissions of VOCs are less than 5 tons per year. A 1000 gallon and two 500 gallon lubricant oil storage tanks are considered as insignificant under 9 VAC 5-80-720 C.

Generally Applicable Requirements

Visible emissions from any emissions unit not specifically listed can not exceed 20% opacity except for one six-minute period in any hour of not more than 60%. This is in accordance with 9 VAC 5-40-80.

LEGAL AND FACTUAL BASIS FOR DRAFT PERMIT CONDITIONS:

The State and Federally-enforceable conditions of the Title V Operating Permits are based upon the requirements of the Commonwealth of Virginia Federal Operating Permit Regulations for the purposes of Title V of the Federal Clean Air Act (9 VAC 5 Chapter 80 Article 1), and underlying applicable requirements in other state and federal rules. Applicable requirement means all of the following as they apply to emission units in a Title V source:

a. Any standard or other requirement provided for in the State Implementation Plan or the Federal Implementation Plan, including any source-specific provisions such as consent agreements or orders.

b. Any term or condition of any preconstruction permit issued pursuant to 9 VAC 5-80-10, Article 8 (9 VAC 5-80-1700 et seq.) of this part or 9 VAC 5-80-30 or of any operating permit issued pursuant to 9 VAC 5 Chapter 80 Article 5, except for terms or conditions derived from applicable state requirements or from any requirement of these regulations not included in the definition of applicable requirement.

c. Any standard or other requirement prescribed under these regulations, particularly the provisions of 9 VAC 5 Chapter 40 (9 VAC 5-40-10 et seq.), 9 VAC 5 Chapter 50 (9 VAC 5-50-10 et seq.) or 9 VAC 5 Chapter 60 (9 VAC 5-60-10 et seq.), adopted pursuant to requirements of the federal Clean Air Act or under § 111, 112 or 129 of the federal Clean Air Act.

d. Any requirement concerning accident prevention under § 112(r)(7) of the federal Clean Air Act.

e. Any compliance monitoring requirements established pursuant to either § 504(b) or § 114(a)(3) of the federal Clean Air Act or these regulations.

f. Any standard or other requirement for consumer and commercial products under § 183(e) of the federal Clean Air Act.

g. Any standard or other requirement for tank vessels under § 183(f) of the federal Clean Air Act.

h. Any standard or other requirement in 40 CFR Part 55 to control air pollution from outer continental shelf sources.

i. Any standard or other requirement of the regulations promulgated to protect stratospheric ozone under Title VI of the federal Clean Air Act, unless the administrator has determined that such requirements need not be contained in a permit issued under this article.

j. With regard to temporary sources subject to 9 VAC 5-80-130, (i) any ambient air quality standard, except applicable state requirements, and (ii) requirements regarding increments

or visibility as provided in Article 8 (9 VAC 5-80-1700 et seq.) of this part.

k. Any standard or other requirement of the acid deposition control program under Title IV of the Clean Air Act or the regulations promulgated thereunder.

l. Any standard or other requirement governing solid waste incineration under § 129 of the Clean Air Act.

Each State and Federally-enforceable condition of the draft Title V Operating Permit references the specific relevant requirements of 9 VAC 5 Chapter 80 Article 1 or the applicable requirement upon which it is based. Any condition of the draft Title V permit that is enforceable by the state but is not federally enforceable is identified in the draft Title V permit as such.

This facility has been found to be subject to the requirements set forth in items "a, b, and c" above.

REQUEST FOR VARIANCES OR ALTERNATIVES:

None

COMMENT PERIOD:

The public notice appeared in the Lynchburg News and Advance on [date].
Beginning Date: ***
Ending Date: *****
All written comments should be addressed to the following individual and office:

Department of Environmental Quality
Lynchburg Satellite Office
7705 Timberlake Road
Lynchburg, VA 24502
Phone: (804) 582-5120 Fax: (804) 582-5125

PROCEDURE FOR REQUESTING PUBLIC HEARING:

During the public comment period any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for a public hearing shall be in writing to the above address and shall state the nature of the issues proposed to be raised in the hearing. The Director shall grant such a request for a hearing if he concludes that a public hearing is appropriate. Any public hearing shall be held in the general area in which the facility is located.